

## Brewery Day 2018

Welcome

Brewers, Agency Staff, Community Members and Experts!



## Q&A Forum

https://groups.google.com/forum/#!forum/vermont-brewery-day--forum



We might not be able to answer all your questions today, so please ask them on our Q&A forum. We will be sure to give you a timely response.

# Welcome Introduction and Context

Commissioner Joan Goldstein

**Department of Economic Development** 

Director Kim Greenwood

Department of Environmental Conservation Environmental Compliance



## Agency of Commerce and Community Development

Vermont Brewery Day

February 6, 2018

# Department of Economic Development

Brett Long – Deputy Commissioner

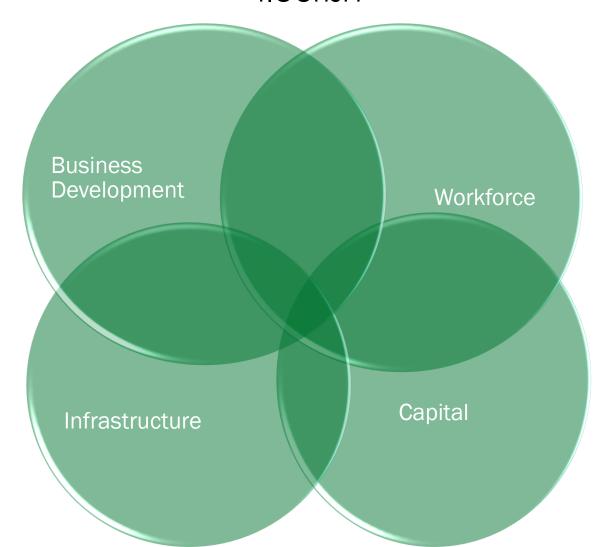


## DED's Mission:

"Improve the well-being and quality of life of Vermonters, while preserving our natural resources and community values."

## Comprehensive Economic Development Strategy ("CEDS"):

Create an environment where business/employee opportunities can flourish



#### Vermont's Craft Beer Industry Growth and Statistics – 2016

#### **Current Industry Size**

54 Breweries 11.49 Breweries per Capita\* (Ranks 1<sup>st</sup> in Nation) \* per 100,000 21+ adults

Produces 17.4 Gallons per 21+ Adult (Ranks 1<sup>st</sup> in Nation)

#### **Economic Impact 2016 Estimates**

Vermont Craft Beer Totals \$376.7 Million (includes tourism)

Maple Syrup Industry \$320 Million

Ski Resort Industry On-Mountain \$300 Million

#### **Tourism Impact 2016 Estimates**

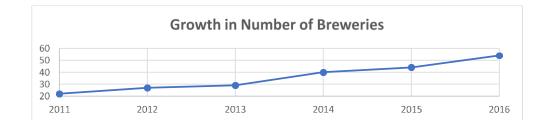
1.6 Million Visitors to Breweries
1.2 Million were Tourists

\$126.7 Million Direct to Tourism

#### **Job Creation 2016 Estimates**

Supports 1,890 Jobs

\$66 Million in Labor Income





Source: Vermont Brewers Association

#### We are here to help you succeed...

- Grant, Loan and Incentive programs
- Advice from like experiences
- Referrals to experts, including partner organizations



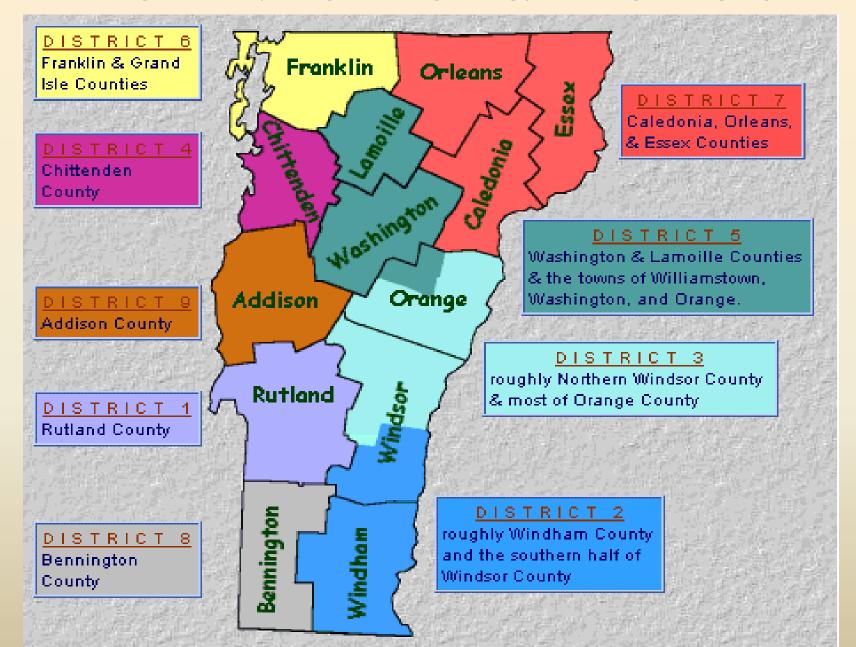
# Where to Begin

Talk to your local Permit Specialist about what permits your brewery will require.





#### 9 Environmental Districts



# ACT 250 JURISDICTION

# Subdivisions of 10 lots or more, or 6 lots in towns without permanent zoning and subdivision regulations. 114.01 +/-115.02 +/-



## Other Act 250 Jurisdictional Triggers

- State and municipal projects >10 acres disturbance
- Housing projects with 10 or more units (higher thresholds for Priority Housing Projects in designated centers)
- ➤ <u>Communication towers</u> >50 feet in height
- Commercial, residential, or industrial development above 2,500 feet
- Material change to an Act 250 permitted project
- > Substantial changes to pre-existing (pre-1970) projects

# ACT 250 EXEMPTIONS TO JURISDICTION

## Farming below 2,500 feet





## Other Statutory Exemptions to Act 250 Jurisdiction

- ➤ Electric generation and transmission facilities regulated by PSB
- ➤ Agricultural fairs and horse shows; no buildings; open to public for < 61 days per year
- > Small scale and on-farm composting
- > And others

## Exemptions by Rule

Act 250 Rule 2(C)(3) & related definitions:

- ► Home occupation defined in Rule 2(C)(17)
  - Use, by a resident, of a minor portion of the residence + ancillary buildings, for occupation/business customary in residential areas that has no potential for significant impact
- ➤ De minimis no potential for significant adverse impact
- >Test wells, preparation & plans

## Jurisdictional Opinions

(is there Act 250 Jurisdiction over a particular project?)

- > Issued by District Coordinator (Letter form or Project Review Sheet)
- ➤ Reconsideration by Coordinator within 30 days
- > Appeal to Environmental Division, Superior Court, within 30 days.



#### Feel free to contact us:

- Natural Resources Board (Central Office)
   10 Baldwin Street
   Montpelier, VT 05633-3201
   (802) 828-3309
- Barre District Office (District #5 Environmental Commission)
   10 Baldwin Street
   Montpelier, VT 05633-3201
   (802) 476-0185 (main line)
- Essex District Office (**District #s 4, 6 & 9 Environmental Commissions**)
  111 West Street
  Essex Jct., VT 05452
  (802) 879-5614 (main line)
- Rutland District Office (District #s 1 & 8 Environmental Commissions)
  440 Asa Bloomer Building
  Rutland, VT 05701
  (802) 786-5920 (main line)
- St. Johnsbury District Office (**District #7 Environmental Commission**) 374 Emerson Falls Road, Suite 4, St. Johnsbury, VT 05819 (802) 751-0120 (main line)
- Springfield District Office (**District #s 2 & 3 Environmental Commissions**)
  100 Mineral Street, Suite 305
  Springfield 05156
  (802) 289-0603 (main line)



# BREWERIES & STORMWATER PERMITTING

**Jamie Bates** 

Stormwater Environmental Analyst
Vermont Department of Environmental Conservation's
Watershed Management Division







#### **OVERVIEW**

- Do Breweries require a permit?
- Permit Description
- How to Apply?
- Best Management Practices (BMPs)
- Questions







#### DO BREWERIES NEED A PERMIT?-- YES!



# THE MULTI- SECTOR GENERAL PERMIT (MSGP) AUTHORIZES POTENTIAL STORMWATER DISCHARGES FROM PRIMARY INDUSTRIAL ACTIVITIES LISTED IN APPENDIX D OF THE GENERAL PERMIT.

\* Appendix D, or Table D-1, which lists out the activity description, <u>Sectors (A-AD)</u> specific to the MSGP, and the correlating <u>Standard Industrial Classification (SIC) codes</u>

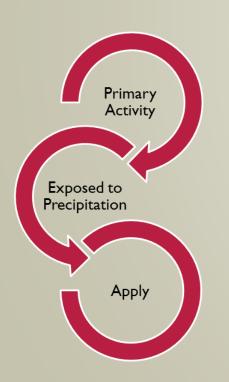


Table D-1. Sectors of Industrial Activity Covered by This Permit		
Subsector (May be subject to more than one sector/subsector)	SIC Code or Activity Code <sup>1</sup>	Activity Represented
SECTOR U: FOOD AND KINDRED PRODUCTS		
U1	2041-2048	Grain Mill Products
U2	2074-2079	Fats and Oils Products
U3	2011-2015	Meat Products
	2021-2026	Dairy Products
	2032-2038	Canned, Frozen, and Preserved Fruits, Vegetables, and Food Specialties
	2051-2053	Bakery Products
	2061-2068	Sugar and Confectionery Products
	2082-2087	Beverages
	2091-2099	Miscellaneous Food Preparations and Kindred Products
	2111-2141	Tobacco Products

#### SIC SEARCH

"Breweries" are listed in Appendix D under SIC code range **2082**-2087 for Malt Beverages

#### OSHA's

Standard Industrial Classification (SIC) System Search Tool

#### Description for 2082: Malt Beverages

Division D: Manufacturing | Major Group 20: Food And Kindred Products

Industry Group 208: Beverages

#### 2082 Malt Beverages

Establishments primarily engaged in manufacturing malt beverages. Establishments primarily engaged in bottling purchased malt beverages are classified in Industry 5181.

- Ale
- Beer (alcoholic beverage)
- Breweries
- Brewers'grain
- Liquors, malt
- · Malt extract, liquors, and syrups
- Near beer
- Porter (alcoholic beverage)
- Stout (alcoholic beverage)

SIC Search

Division Structure

Major Group Structure



#### HOW TO APPLY

Full Coverage

- Industrial activities exposed to precipitation
- Complete and submit (by mail):
  - ❖Notice of intent (NOI)
  - ❖ Stormwater Pollution Prevention Plan (SWPPP)
  - Payment
- Breweries would not require quarterly benchmark monitoring



NOX

- Industrial activities not exposed to precipitation (under cover or roof)
- Complete and Submit (by mail):
  - ❖ Notice of Certification No Exposure Form (NOX)
- No Monitoring Requirements



Permits generally last up to 5 years, or up until the general permit is renewed, in either case the state will notice MSGP permittees

## NOX BEST MANAGEMENT PRACTICES (BMP'S)

\* Part 1.6 of the general permit lists NOX conditions for areas where manufacturing, raw material product storage and handling, and maintenance occur; to not be exposed to precipitation.

#### \* Materials and activities that <u>do not</u> need shelter for NOX:

- Drums, barrels, tanks, and similar containers that are tightly sealed, without taps or valves
  - Closed dumpsters
- Adequately maintained vehicles used in material handling
- Final products, other than products that would be mobilized in stormwater discharge (e.g., rock salt or grain)







#### QUESTIONS?

Please feel free to contact us about MSGP or general stormwater questions

Email me: <u>Jamie.Bates@vermont.gov</u>

Or

My colleague Matt Destino: Matthew.Destino@vermont.gov

# Waste Water & Drinking Water Permitting

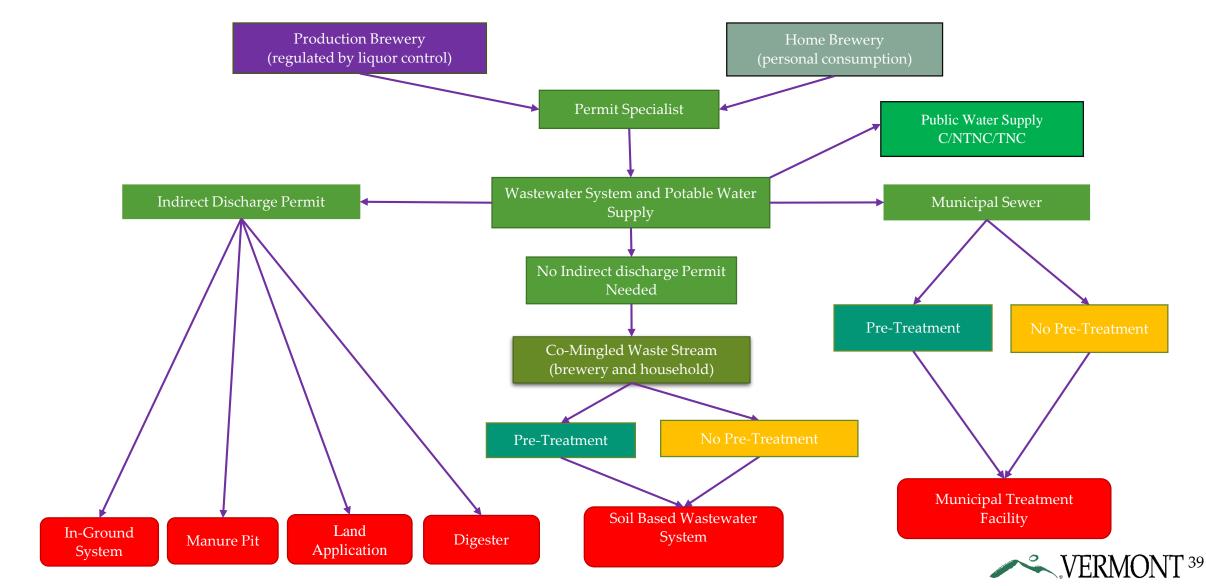
## What we need to make a determination:

- ★ Anticipated beer production (both current and expected volumes)
- Brewery operations description (number of brew days per week, discharge days per week, packaging schedule, keg returns, cleaning schedule, etc.)
- ★ Description of the pollution prevention practices designed into the operation of the brewery and should include:
  - ★ Measures taken to separate, collect and dispose of high-strength waste (lauter tun, used grains, spent yeast, first-rinse water, spoiled beer, etc.)
- spoiled beer, etc.)
  BOD and flow allocation documentation from the town.



### Brewery Wastewater Permitting

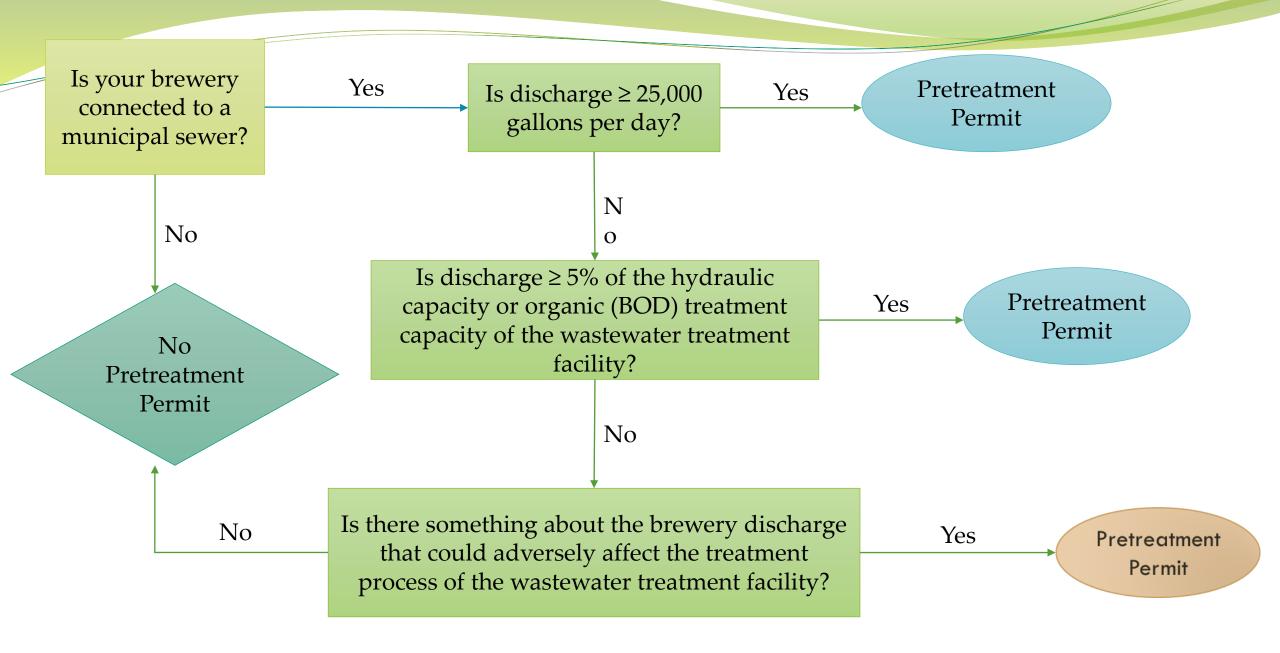




## Wastewater Management Program Pretreatment Permits

Brewery Discharges to Municipal Sewers





# Typical Permit Requirements:

- Flow Limit
- Biochemical Oxygen Demand (BOD) Monitoring

Typical sanitary concentrations are ~300 mg/l.

Brewery wastewater can range from 1,000 – 10,000 mg/l depending on pollution prevention practices.

pH Monitoring

Federal regulations prohibit discharges with pH of less than 5.0 SU to municipal sewers.

Total Suspended Solids (TSS) Monitoring

Typical sanitary concentrations are ~300 mg/l.

Brewery wastewater can range from 500 – 8,000 mg/l depending on pollution prevention practices.



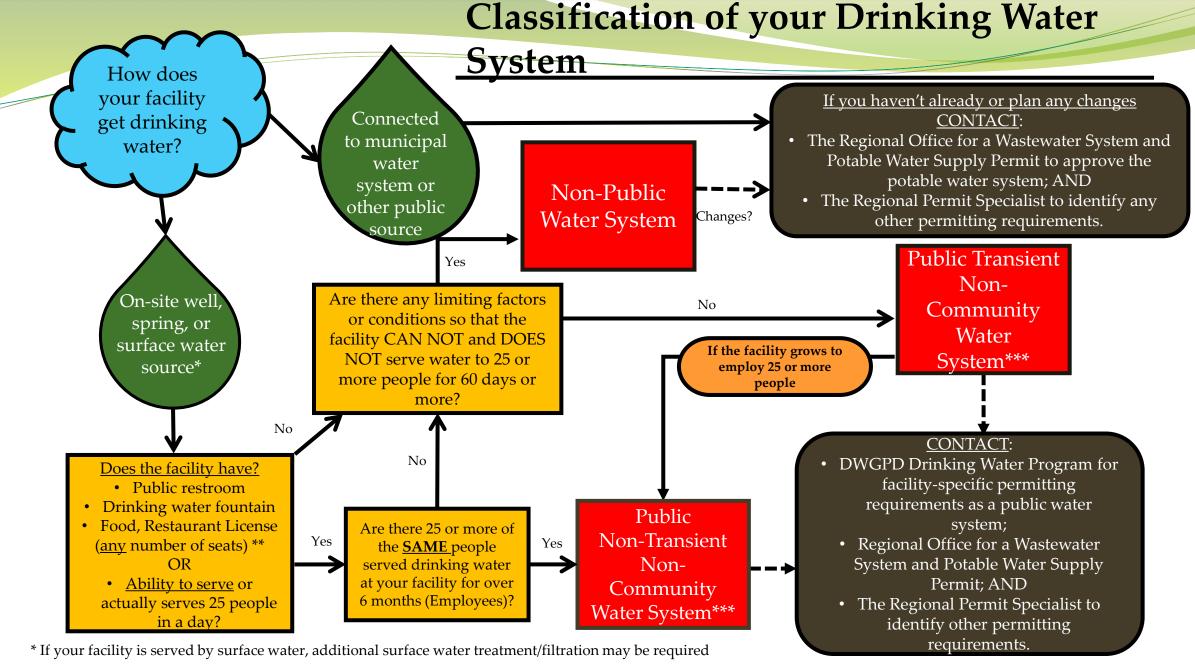
# You don't need a permit? Here's some Free advice:

- Hire a consultant with brewery wastewater and design experience.
- Design brewery with growth in mind.
- Separate your brewery process wastewater from your sanitary wastewater.
- Use cleaners that don't contain phosphate.
- Storage tanks.



# Public Drinking Water System Regulation

- Water Source serving or being capable of serving water to 25 people for at least 60 days
  - Transient Non-Community (TNC)
  - Non-Transient Non-Community (NTNC)
  - Community
  - "Public" = population | "Public" ≠ ownership
- Initial permitting requirements
- On-going operational and monitoring requirements
- If the brewery is served by a regulated water system, much of the drinking water aspect of this will <u>not</u> apply to your facility



<sup>\*\*</sup> The Restaurant License will be issued upon updating/compliance with DWGWP Regional Office Wastewater System and Potable Water Supply Permit

<sup>\*\*\*</sup> As a public water system you will establish a permitted capacity. If your facility grows or expands, it requires new permits. Contact the DWGWP prior to any expansion.

### Interplay among Food and Lodging, Liquor Control and Public Drinking Water Programs\*

- 4<sup>th</sup> Class License (no Department of Health Food and Lodging License <u>required</u> unless food is provided):
  - Tasting facility
    - No food or public restroom <u>required</u>.
      - With public restroom → Public water system
      - With public offering of water → Public water system
  - Things to consider: Tasting facility with "full pour" events
    - How many events?
    - Public restroom facilities and/or offering of water?
- 1st Class License: Food and Lodging License Required
  - Need to have an accurate WW permit;
  - Will be a public water system
- Department of liquor control license issued only after WW permit and F&L Permits are in place.

# Public Water System Regulation

- Necessary information:
  - Wastewater System and Potable Water Supply Permit;
  - Food and Lodging License information; and
  - Clear understanding of the uses of the facility.
- Typical Permitting requirements:
  - Source Permit
  - Construction permits
  - Operating permit

# Public Water System Regulation

- Think ahead; what's your 5-10 year plan?
  - Well construction and location it's different for public water systems than non-public
  - Kitchen size and capacity need a kitchen to serve full drinks and food
  - Water quality and quantity
- Think Public Health / Public Perception
- Consultants to contact:
  - Hydrogeologist
  - Professional engineer
  - Certified operator (you could become the operator)
- Takeaway:
  - Talk to Permit Specialists and Regional Engineers BEFORE making any changes or with any questions about your facilities.

http://dec.vermont.gov/water

### Questions?

Ben Montross: <u>ben.montross@Vermont.gov</u> / 498-8981

Meredith Maskell: <a href="maskell@vermont.gov">meredith.maskell@vermont.gov</a> / 585 -4896

Regional Permit Specialists:

http://dec.vermont.gov/environmental-assistance/permits/specialists

Division Website: <a href="http://dec.vermont.gov/water">http://dec.vermont.gov/water</a>

TNC-specific website: <a href="http://dec.vermont.gov/water/drinking-water/public-drinking-water-systems/tncws">http://dec.vermont.gov/water/drinking-water/drinking-water-systems/tncws</a>



### Brewery Day: Food Service Licensing



### VDH Food & Lodging Program

- □ Approximately 6,000 licenses issued annually
- □ 2018: 11 Public Health Inspectors
- □ Licensing and inspection of establishments
- □ Regulatory compliance & enforcement
- □ Complaint investigation
- Environmental investigations
- □ Technical assistance and education

### Breweries Serving Food

- □ Contact VDH for preliminary inspection
- Restaurant license for food service
- Commercial kitchen facilities
- □ Wastewater and water system permits
- □ Plan ahead for growth:
  - Build at least two public bathrooms for >25 de
  - 3-bay sink with proper air gap plumbing
  - Handwashing sink(s)
  - Cleanable surfaces

### Inspection Components

- □ Source of food
- □ Food protection
- Personnel
- □ Equipment & utensils
- Dishwashing equipment
- □ Sanitizing procedures
- Toilet & handwashing facilities

- □ Water system
- Sewage disposal
- Plumbing
- Garbage disposal
- □ Insect & rodent control
- ☐ Floors, walls, ceilings
- Lighting
- □ Ventilation

### Contact Us:

VDH Food and Lodging Program

108 Cherry Street - PO Box 70

Burlington, VT 05402-0070

AHS.VDHFoodandLodging@vermont.gov

Phone: (802) 863-7221

(800) 439-8550 (toll free in VT)

#### Resources:

#### www.healthvermont.gov/environment/food-lodging



# Recap

Role of the Permit Specialists

Takeaway Messages

Questions?

## Lunch

Local Sandwiches and words from some of our sponsors:
-Norwich Solar Technologies
-SunCommon Solar



# Thank you to our partners and sponsors!







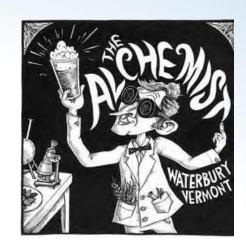






# Sustainability in Craft Brewing

February 6, 2018





Presented By:

Stephen F. Miller - The Alchemist

Michael A. Smith, P.E. - Weston & Sampson

for

**Vermont Brewery Day** 





#### Sustainability

#### Webster's Definition:

"the ability to be maintained at a certain level"

#### Ecological definition:

"to remain diverse and productive"

#### Environmental definition:

"avoidance of the depletion of natural resources..."





#### Sustainability

#### Brewers Association Definition:

"Environmental stewardship is a top priority for both craft brewers and craft beer enthusiasts. Maintaining a healthy balance between stewardship, social enrichment, and economic vitality is important to the future success of craft brewing."





#### Sustainability

#### •Alchemist Definition:

"...creating a work environment that minimizes our impact on the natural environment while maximizing our productivity in a fun and positive work place."







#### **Priorities**

#### 1. Wastewater Management

- Efficient water use/minimize wastewater volume
- Low flow fixtures
- Containment to protect groundwater
- Wastewater Pre-treatment to domestic strength
- Re-use of wastewater pre-treatment residuals



"We have (municipal) waste water systems that are already overworked and not handling the material well."

- Jen Kimmich





#### **Priorities**

#### 2. Sidestreaming Brewing Wastes for Beneficial Use

- Yeast and hops to digestion/composting
- Spent grains for animal feed
- Brewing first Rinse to digestion



"...sidestreaming is something every producer (cheese, yogurt, beer, distilleries) can and should do."

- Jen Kimmich





#### **Priorities**

#### 3. Solid Waste Management

- Recycling
- Goal of "zero waste"
- Compost food scraps from lunchroom

#### 4. Clean Energy & Energy Conservation

- Solar
- Net Metering offset grid consumption
- Energy efficient lighting and HVAC
- Use winter outside air to refrigerate cooler







### Why is Wastewater Important?







#### **Brewery Wastewater Issues**

- Management of wastewater and residuals
- Trouble finding capacity
- Cost of capacity



Taking focus away from brewing



#### **Community Wastewater Issues**

- Environmental Management
  - Organic Load from brewing
  - Nutrient Load from brewing
- Capacity limitations
- Regulatory restrictions
- Conflicts with growth goals
- •Inconsistent Approach





#### What's In the Wastewater

- Organics/Solids:
  - Spent Grains
  - ☐ Yeast
  - □ Biochemical Oxygen Demand (BOD<sub>5</sub>):
    - ✓ Best Management Practices 2,500 to 3,000 mg/L
    - ✓ Poor 10,000 to 15,000 mg/L
  - □ Total Suspended Solids (TSS):
    - ✓ Best Management Practices 500 to 1,000 mg/L
    - ✓ Poor 8,000 to 15,000 mg/L
  - □ pH
    - ✓ Typically in the range of 5 6 S.U.





#### What's in the Wastewater

- Municipal Wastewater Treatment Facilities
  - ✓  $BOD_5$  250 to 350 mg/L
  - ✓ TSS 250 to 350 mg/L
  - ✓ pH 7 to 8.5 S.U.

A little brewery wastewater = A LOT OF CAPACITY







#### **Best Management Approach**

- •Separate Solids:
  - √ Spent Grains
  - √ Yeast



- •First Rinse Management:
  - ✓ Collect additional solids and yeast
- •Pre-treatment:
  - ✓ Conditioning
  - ✓ Aerobic Treatment
  - ✓ Anaerobic Treatment





#### **Conditioning**

- Typically for Municipal Connections
- Settling and Buffering
- pH Adjustment
- Disolved Oxygen (D.O.)
- •Effluent Monitoring:
  - □ Flow
  - □ DO
  - □ pH





#### **Aerobic Pre-Treatment**

- For Municipal Connections and In-ground
- Settling and Buffering
- pH Adjustment
- Aerobic Treatment
- Solids Separation
- Effluent Monitoring:
  - □ Flow
  - □ DO
  - □ рН
  - □ BOD
  - □ TSS

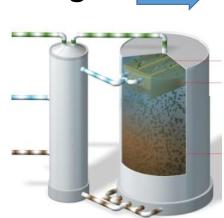






#### **Anaerobic Pre-Treatment**

- For Municipal Connections
- Settling and Buffering
- pH Adjustment
- Anaerobic Treatment
- Solids Separation
- Effluent Monitoring:
  - □ Flow
  - □ DO
  - □ рН
  - □ BOD
  - □ TSS



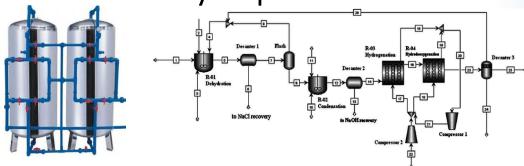






#### When is Pre-treatment Required

- Any Subsurface Disposal
- •Municipal Connections:
  - □Organic Loading is > 5% of Municipal Capacity
  - □Hydraulic Loading is > 5% of Municipal Capacity
  - ☐ If community requires it in their ordinance







#### **What Brewers May Need to Do**

- Request Treatment Capacity from Community
  - Negotiate High-strength WW Agreement
    - Permitting
      - Design Review by Municipality and State
        - Residuals (spent materials) Management
          - Effluent Sample/Monitor/Report

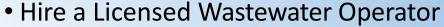






#### **Planning Considerations**

- Work with a qualified engineering consultant
- Detailed Wastewater Quality Analysis
- Evaluate Packaged and Component Systems
- Pilot Packaged Equipment



- Consider Long-term O&M
- Consider Long-term Goals for Growth



#### **Alchemist Sustainability Initiatives**

- 1. Greenhouse Project Aquaponics
  - Consume CO<sub>2</sub> generated by the brewing process
  - Generate usable byproduct fish and vegetables
  - Sustainability education tool and example for the community
- 2. Solar Farm in Bethel Net metering for Waterbury Brewery
- 3. Stowe Brewery Solar Energy offset for Stowe facility
- 4. Joined National Brewery Climate Declaration

"We are taking all sorts of small steps to reduce our environmental impact."

- Jen Kimmich





#### **Questions & Discussion**





## Thank You for Your Time & Enjoy the Program





## Brewery Day 2018

Project
WorkSAFE
Hazel Hunter
802-793-2532
VERMONT

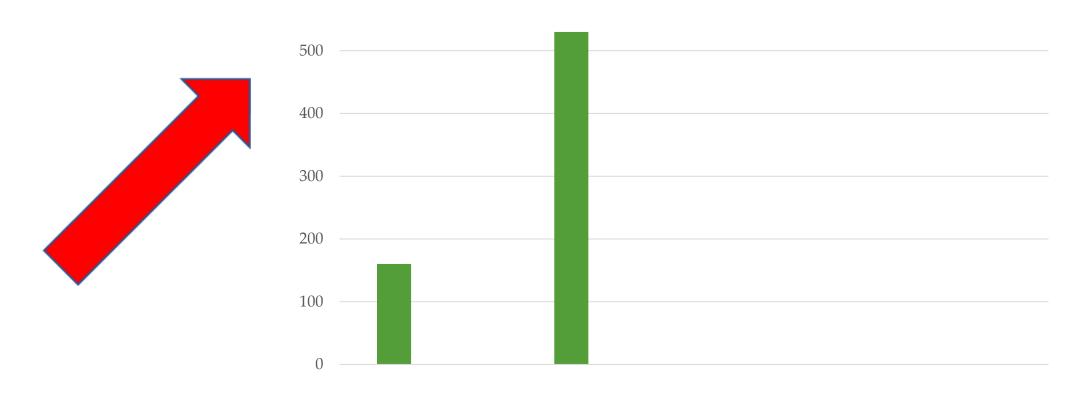


Year	Deaths
2011	160
2015	530

600



## Deaths Up



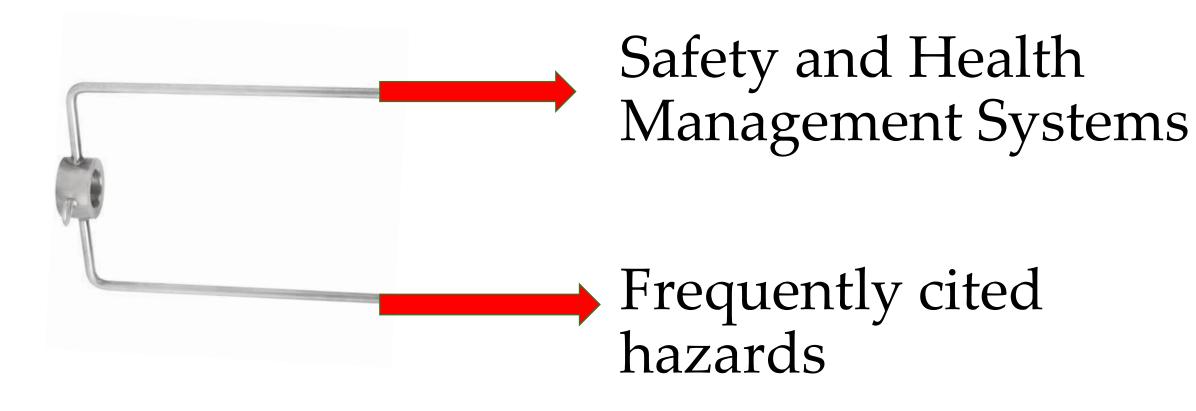
2011 2015

## Fatalities and Serious Injuries

- 2012 Redhook Brewery 1 killed exploding keg compressed air
- 2009 Calhoun explosion Confined Space
- 2010 Ballast Point Brewing Company July 1 Injured Boil over
- 2010 Ballast Point Brewing Company Aug. 1 Injured Boil over
- 2013 Corona Brewery Z people Killed Confined Space
- 2014 Stone Brewing Company Forklift rollover
- 2015 Edge Brewing Co. Serious burn 30% OF BODY BOIL OVER
- 2009 Millercoors, Llc Electrocution
- 2009 Flying Dog Brewery Carbon Monoxide Poisoning (Propane forklift inside cooler)



### Two prong approach today



Safety and Health Management Systems

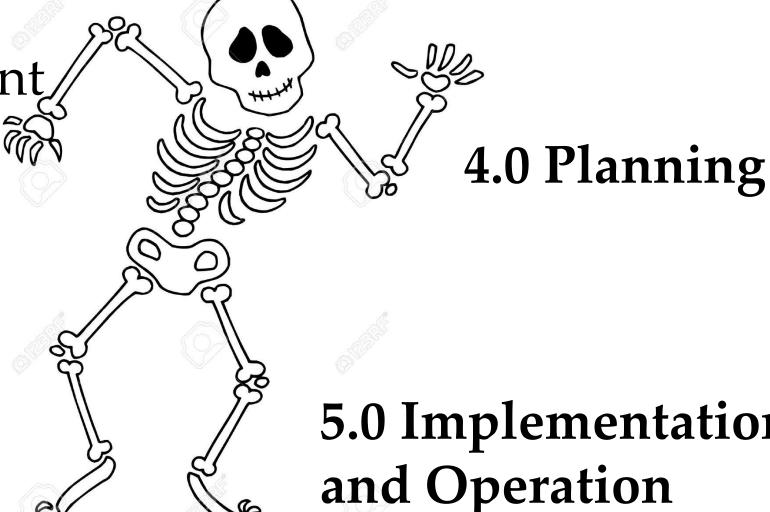




Participation

7.0 Management

Review



6.0 Evaluation and Corrective Action

5.0 Implementation and Operation



#### The Goal



### Continual Improvement





#### Management Leadership

Policy
(documented, employee protection & participation)

Responsibility and Authority



### **Examples of Employee Participation**

- Incident investigations
- Procedure development
- Audits
- Training development
- Job safety analysis
- Planning process
- Safety Committee

• Involvement by all employee levels

 Resources and time to participate



## 4.0 Planning This is BIG PICTURE PLANNING -

- Conduct Initial Review
- Identify Hazards and Risks
  - Use the resources available to you
  - Are you VOSHA complaint?
  - Is your insurance appropriate and adequate
- Assess & Prioritize Issues
- Set Objectives
- Develop Implementation Plans



## Planning-Initial Review

#### Resources –

- your insurance co.,
- Project WorkSAFE,
- https://www.brewersassociation.org/
- •https://www.mbaa.com/brewresources/brewsaf ety/Pages/default.aspx
- Keene State College OTI training/classes brochures at the Project WorkSAFE desk



#### 5.0 Implementation-Design Review

#### & Management of Change New Processes or Operations

#### Examples

- New Tanks
- New Chemicals
- Changes to existing operations, suppliers, services etc.
- Outside contractors



#### 5.0 Implementation-Design Review

### & Management of Change

Have a process to think about and analyze the hazards prior to the change!

Numerous forms available to assist with process.



## 5.0 Implementation - Emergency Preparedness

- Develop plans based on potential scenarios
- Periodic testing of plans



# 5.0 Implementation Education, Training & Awareness

- Assess and define competence needed
- Ensure appropriate training
- Remove barriers to participation
- Provide in language employees understand



## 5.0 Implementation Communication

- Prompt reporting of incidents
- Remove barriers to reporting
- Encourage employees to make recommendations for corrective actions



### Action

#### Monitoring & Measurement

- Physical inspections
  - Safety Committee
  - Insurance Co
  - Project WorkSAFE
- Exposure assessment
- Injury/Illness tracking
- Employee input



#### 6.0 Incident Investigation

- Develop process to investigate incidents
  - Not just those that cause injury / near miss also

Not a blame game activity

•And not a "pat" answer activity – i.e., be more



## 7.0 Management Review

- Periodic Assessment
- Done by Top Management
- Create & Track Recommendations
- Document and Report



#### The Goal



### Continual Improvement





## Most frequently cited Electrical for Breweries Betw. 2015 and 2017

(22 visits covered)



Topic

Count

## Hazard Communication Pro

- II. Naming of responsible people
- II. Container Labeling
- III. Safety Data Sheets
- IV. List of Chemicals / index
- V. Unusual tasks
- VI. Employee Training (Include GHS) due date was <u>Dec. 2013</u>
- VII. Sharing information with outside contractors
- VIII. Evaluate and Reassess Your Program

https://www.osha.gov/Publications/OSHA3695.pdf#page=36





#### Lockout / tagout

- I. Written (Formal)
- II. Naming of responsible people
- III. Evaluation of machines / equipment
- IV. General Procedures
- V. Machine / equipment specific procedures
  - 1. Energy Sources
- 2. Quantity of each source i.e. 240 volts VI.Evaluate and Reassess Your Program

Lockout / Tagout



## Sources of energy

- Electrical
- Pneumatic
- Hydraulic
- Gravity
- Mechanical
- Pressure
- More

## LOTO Machine Specific

ſ		NOTICE				
1	MACHINE:	DO NOT WORK ON MACHINERY UNLESS YOU HAVE HAD ENERGY CONTROL AND				
+		POWER LOCKOUT TRAINING AND THOROUGHLY UNDERSTAND THE FOLLOWING				
1	MACHINE NUMBER:	PROCEDURES:				
- 1		1. MACHINE SHUT DOWN				
- 1		2. POWER LOCKOUT				
- 1		3. STORED ENERGY DISSIPATION OR RESTRAINT				
1		4. VERIFICATION OF LOCKOUT AND ENERGY CONTROL				
1	ENERGY CONTROL	TE VOLUMANE AND OUTCOMONG A DOLLT DROBED I OCKOLT DROCEDURES ASK VOLUD				
- 1	AND POWER LOCKOUT	IF YOU HAVE ANY QUESTIONS ABOUT PROPER LOCKOUT PROCEDURES, ASK YOUR				
1	LOCATIONS	SAFETY DEPARTMENT REPRESENTATIVE OR SUPERVISOR.				
- 1						
- 1						
- 1						
- 1						

<u> </u>			
ENERGY TYPE AND SOURCE	LOCKOUT LOCATION	PROCEDURE FOR LOCKING OUT AND/OR RELEASING ENERGIES	VERIFY PROCEDURES
Electrical 480 Volts	Main Electrical Enclosure	Place main disconnect handle in "off" position. Attach multiple lockout devices. Lock and tag.	Press Main Control "ON" Button Press Motor Start "ON" Button Press "Manual Forward" Button No lights, no motor noise, or motion should occur.
Electrical Volts	Wall Receptacle	Disconnect plug from outlet. Place plug into lockout cylinder and padlock cover.	Visually ensure no spindle rotation.
Release Electric	Power System Capacitors	Place main disconnect handle in "off" position.  Lock and tag. Allow a few minutes for capacitor to dissipate any stored electric energy.	Use prescribed procedure to time and measure with meter to ensure no voltage is present. – If testing potentially "live elec." must use NFPA 70 E work practices
Coolant	Main Electrical Enclosure	Place main disconnect handle in "off" position. Attach multiple lockout devices. Lock and tag.	Press "Control On" Open coolant lever. Turn coolant to "Flood". No coolant should flow.
Hydraulic	Main Electrical Enclosure	Place main disconnect handle in "off" position. Attach multiple lockout devices. Lock and tag.	Press "Control On". Move W-axis lever to away position. No motion should occur.
Pneumatic	Air Drop Shut Off	Move operation handle to the "Off" position. Attach multiple lockout devices. Lock and tag	Manually test air flow. None should occur
Control Gravity		Block head assembly to prevent any movement up or down when energy source removed.	Ensure that suspended equipment cannot move
Dissipate Rotation	Spindle	Place main disconnect hand in "off" position. Allow equipment to stop movement.	Visually ensure no spindle rotation
Mechanical	Spring or Revolving Mechanism	What ever you want them to do to control the mechanical energy	
Water	Main Water Valve	Turn off water and attach lockout device.	Test to ensure no water is released when system requires water
Heat	NA	Allow time (approx 10 minutes) for unit to cool	Appropriate method
Liquid Propane Gas	At Tank	Disconnect regulator from tank	Check gages for pressure. Should read 0. – Note – gages can fail

#### Powered Industrial Trucks - PIT

Do any of you have forklifts?





#### Fork Lift (PIT) Suggest Written Program

- Required
  - Training
    - Formal
    - Practical
    - Hands on Evaluation
    - Recert every 3 years
  - Inspection
    - Pre-shift Recommend in writing
    - Required to be completed



#### Fork Lift (PIT) Attachments

• Attachments that could effect the stability /safety of the fork lift must be approved by the manufacturer and a data plate with modifications must be attached



Confined Space are confined spaces!



http://www.aaametal.com/breweries/tanks.html



### Confined Space

Defined by OSHA as an area:

- large enough and so configured that an employee can bodily enter and perform assigned work, and
- has limited or restricted means of entry or exit and
- Is not designed for continuous occupancy
- All three conditions must be present to be a confined space



### **Confined Space**

OSHA Requirements

This is a huge subject – not for today!

**But briefly** 

- Identify and classify all confined spaces
- Label confined spaces and notify employees
- Train employees on confined spaces and the hazards of each space
- If no entry to PRCS needed, secure access points to prevent entry
- If entry to PRCS needed, develop PRCS written program and entry procedures





# Confined Space

https://s3-us-west-2.amazonaws.com/brewersassoc/wpcontent/uploads/2015/04/Best-Management-Practice-for-the-Management-of-Confined-Spaces-in-Breweries.pdf



## Electrical

#### In Short

- Electrical must be approved for the environment
- Must be physically sound
  - No cuts, missing face plates, ground pins missing, etc.
- Ground Fault protected in wet locations



## Eye Wash

When corrosives are used, flushing facility must be provided. There are ANSI rules

So, have them, Inspect them, Keep them unobstruct

# PPE Assessment 1910.132 The employer shall:

- Assess
- Select
- Communicate / train
  - How to wear PPE
    - (Apron above boots no
    - Pants tucked into boots no
- Verify /document

**But First!!!** 



Hierarchy of Controls
Before you use any Personal Protective Equipment!

- Eliminate = Best
  - A. Substitution
- 2. Engineering Controls
- 3. Administrative Controls
- 4. PPE Last resort



### PPE Company Name:

#### Hazard Assessment Form

This document will act as Certification to meet 1910.132 (d) (2).

1910.132(d)(2) The employer shall verify that the required workplace hazard assessment has been performed through a written certification that identifies the workplace evaluated; the person certifying that the evaluation has been performed; the date(s) of the hazard assessment; and, which identifies the document as a certification of hazard assessment.

Location/Operation:(	<mark>Grinding – Bench Grinder</mark>	Date:	Auditor:
----------------------	---------------------------------------	-------	----------

Eye/Face Protection – CFR 1910.133 and ANSI Z87.1-2010

Type of Hazard	Source of Hazard	Poter	ntial for	Injury	Required PPE	Comments
Flying Particles	Grinding	<mark>High</mark>	Med.	Low	Safety Glasses with side shields	If lexan shield is not used then full face shield in addition to safety glasses
Molten Metal	No	High	Med.	Low		
Liquid Chemicals	No	High	Med.	Low		
Acids or Caustics	No	High	Med.	Low		
Light radiation	No	High	Med.	Low		
Impact hazard**	Grind wheel breaking	High	Med.	Low	N/A	<ol> <li>Conduct ring test when installing new wheel,</li> <li>ensure wheel is not "loaded" dress when wheel becomes loaded</li> <li>Stand to the side of the wheel when it is turned on</li> </ol>



# Walking Working

Per 2014 Bureau of Labor Statistics,

• 261,930 workers missed one or more days of work due to injuries from falls on the same level or to lower levels

798 workers died from such falls



# Fire Extinguisher



- 1. Have them
- 2. Inspect them annually (outside vendor)
- 3. Inspect them monthly (inside person)
- 4. Annual Training
- 5. Maintain them unobstructed



## First Aid 1910.151

## First aid must be <u>readily</u> available:

- By either onsite medical personnel
- By a readily available hospital
- Or by onsite first aiders and first aid supplies



## Means of Egress

- Must have an adequate number
- Must not be obstructed
- Path to exit must be clear
- Must be maintained, example snow removed from areas where employees discharge in the event of an evacuation



# Recordkeeping

- 300 log
  - 300 A Summary

(Post from Feb 1 to April 30)

Severe Injury Reporting - to OSHA / VOSHA Employers must report:

- worker fatality within 8 hours
- And within 24 hours:
  - any amputation,
  - loss of an eye,
  - or hospitalization of a worker



Respiratory Protection







# Respirator Requirements

# Another topic too large to discuss today

- Program Administrator
- Medical Questionnaire
- Fit Testing
- Training
- Voluntary Use



# Housekeeping

Minimize dust Slips / trips



# Minimal Bloodborne Pathogen Program

Not on the most frequently cited hazards.

but....



#### comprenensive assistance.



# Leslie Curtis Administrative Assistant

(p) 802.828.5076

# "What do I do with this?" A Solid Waste Solutions Session

Composting, Digesters nutrient recovery and options for responsible disposal of waste

Solid Waste Management, VT DEC Emma Stuhl and Dennis Fekert Vermont Agency of Agriculture, Food & Markets, Alex DePillis and Maria Steeyart Grow Compost Vermont, Ben Zabriskie



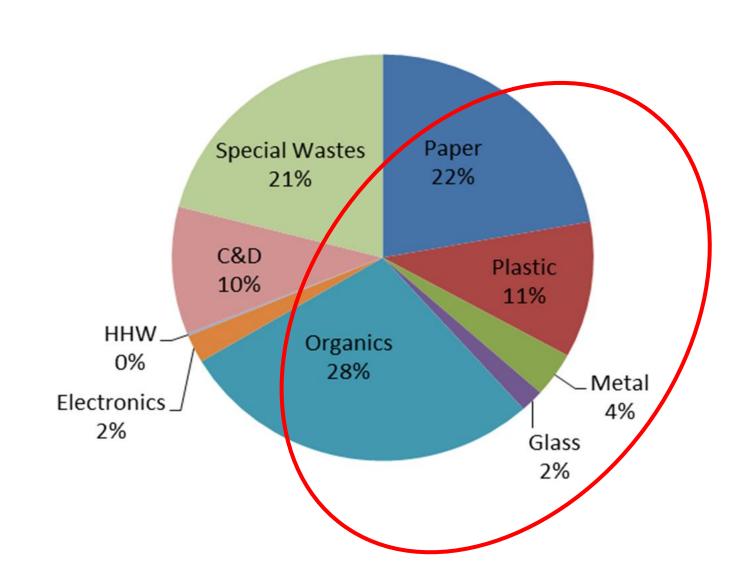


## What Do I Do With This?

Emma Stuhl Emma.Stuhl@vermont.gov 622-4325



## Inspired by Vermont's trash.



## And keeping Vermonters safe.



#### And taking care of VT (and the US and the world).



instead of trashing

them would...

as much as not

driving ~84 million

miles.

(1) January 2018





### So, what is required?







Returnables

**5¢** 

Look for 'VT' on redemption stamp

VERMONT 1 1 1

Select beverage

Clean and empty only, please.

containers







Leaf and yard debris, grass clippings, branches, etc.

### Food scraps: now or 2020?

#### If there is a facility within 20 miles:

• 2014: >104 tons/year 2 tons/wk

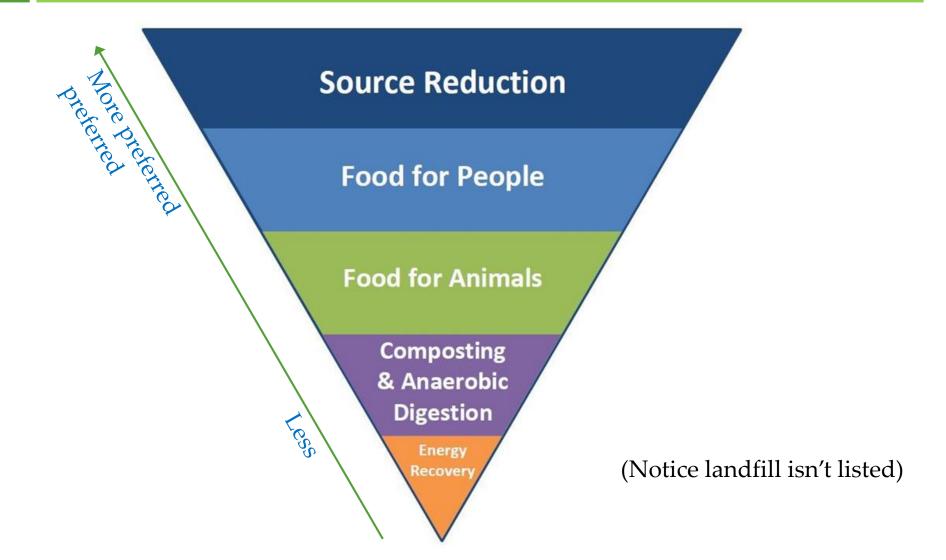
• 2015: >52 tons/year 1 ton/wk

• 2016: >26 tons/year 1/2 ton/wk

• 2017: >18 tons/year 1/3 ton/wk

2020: All food scraps banned from landfill





## Finding a Hauler

WASTE MANAGEMENT AND PREVENTION DIVISION | FOOD SCRAP HAULER DIRECTORY

### VERMONT RESIDENTIAL AND COMMERCIAL FOOD SCRAP HAULER DIRECTORY

#### **Commercial Food Scrap Haulers**

#### Black Dirt Farm www.blackdirtfarm.com

- Towns Serviced: Lyndonville, St. Johnsbury, Danville, Jay, Newport, Derby, Morrisville, Greensboro, Hardwick, Hyde Park, Stannard, Wolcott, and possibly Barton and Johnson.
- Contact: Jenn Davis, 802-533-7033, jenn@blackdirtfarm.com

#### Casella Resource Solutions www.casella.com

- Provides services to large and mid-sized commercial generators throughout most of the state.
- Towns Serviced: Towns throughout the state.
- Contact: 800-227-3552 (800-CASELLA)

#### Central Vermont Solid Waste Management District <u>www.cvswmd.org</u>

- Towns Serviced: Barre City, Barre Town, Berlin, Calais, Chelsea, East Montpelier, Hardwick, Middlesex, Montpelier, Northfield, Orange, Plainfield (also Marshfield's Twinfield school), Tunbridge, Walden, Washington, Williamstown, and Woodbury.
- Contact: Cassandra Hemenway, 802-229-9383, <u>cassandrah@cvswmd.org</u>

#### Cloud's Path Farm

- Towns Serviced: Sheffield, Lyndonville, Glover, Barton. Possible expansion to Burke and other towns surrounding Lyndonville.
- Contact: Sam Carter, 802-535-4670, <a href="mailto:samuelfcarter@gmail.com">samuelfcarter@gmail.com</a>

#### Cookeville Compost

Towns Serviced: Bradford Thetford White River Ict and Fairlee In NH: Hanover and Lehanon

## Special recycling programs.



#### BANNED & SPECIAL RECYCLING: Find collection locations at vtrecycles.com.







Mercury-containing bulbs, thermostats, switches, thermometers, etc.



Paint, stain, thinner and varnish





Computers and accessories, phones, TVs, MP3 players, VCRs/DVDs, etc.







Lead-acid, rechargeable, and other batteries

### Other banned or dangerous materials.



#### **Bottle Bill**







- Includes
  - beer
  - other malt drinks
  - mineral waters
  - mixed wine drink
  - soda water
  - carbonated soft drinks
  - liquor

#### **Bottle Bill**

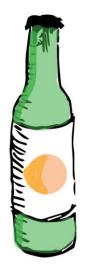
- Must label container:
  - 5¢ for non-liquor containers
  - 15¢ for liquor containers larger than 50mL

• Must register:

https://anrweb.vt.gov/DE C/BottleBill/



#### **Bottle Bill**





- Must pick-up from retailers and certified redemption centers
  - Can hire an agent
- Must pay retailers/ redemption centers:
  - 3.5¢ per container for brands in commingling program
  - 4¢ per container for brands that are not in commingling program

#### Learn more www.vtrecycles.com



**f** VTrecycles



**@VTrecycles** 

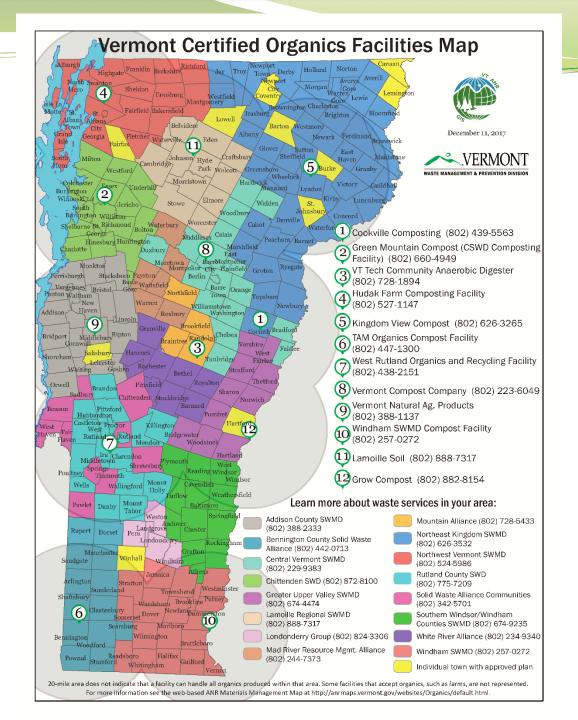


Find your Waste District WWW.Vtrecycles.com

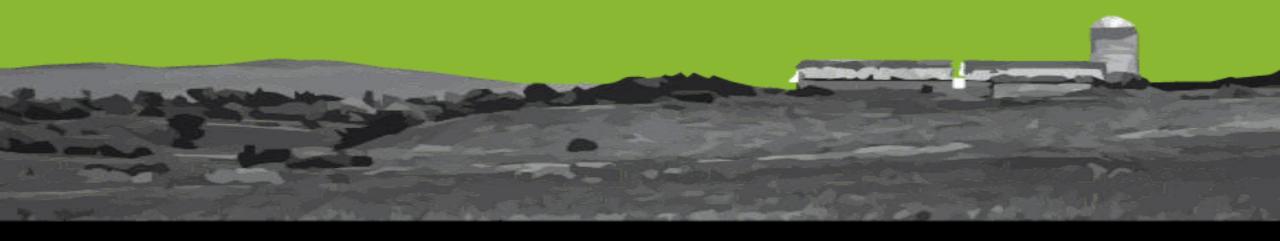


Emma Stuhl 802-622-4325

Emma.Stuhl@vermont.gov



# AGENCY OF AGRICULTURE'S PROCESS FOR APPROVING IMPORTATIONS



# GENERATORS RESPONSIBILITY FOR EXPORTING WASTE TO FARMS

Presented by Maria Steyaart

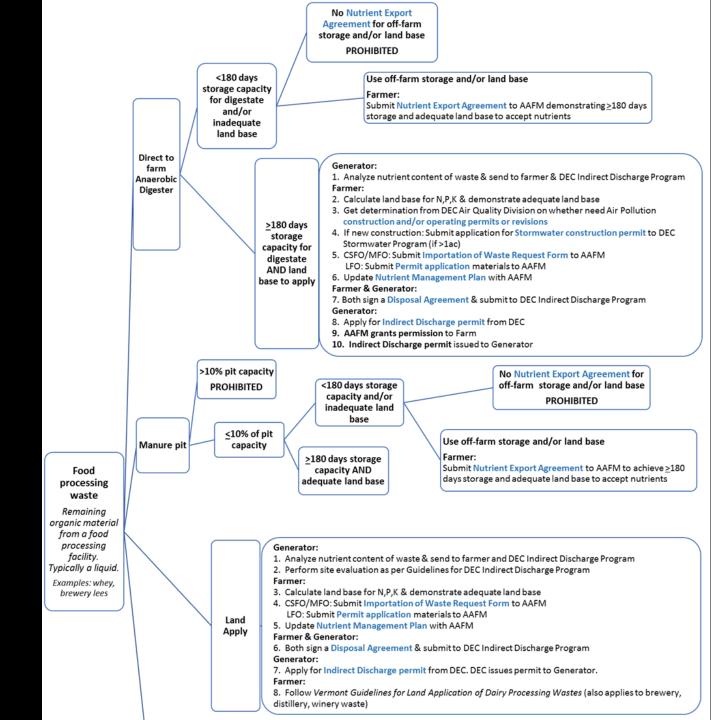




# WHAT DOES BREWERY WASTE HAVE TO DO WITH FARMS?

They can provide energy for on-farm digesters, and nutrients for the land!

# THE ENTIRE EXPORT/IMPORT PERMITTING PROCESS FROM GENERATOR TO FARM



# PROCESS FOR THE GENERATOR TO EXPORT BREWERY WASTE



Analysis material and fill out substrate form

Make sure to analysis in the correct units!

2

Contact farms to see if they would want material and hand the form to the farmer 3

Contact Agency of Natural Resources (ANR) for permit/certification (with proposed list of farms)



ANR contacts
Agency of
Agriculture, Food
and Markets
(AAFM)

## PAPERWORK FOR THE GENERATOR

The Substrate Form

Name Date:  Facility Name/Location where Substrates/Wastes will be imported to:							
II. Substrate/Ag Waste Generator Information Substrate/Ag Waste Description Generator Name  Name of Contact at the Point of Generation  Phone Number of Contact () Email of Contact							
III. Description of Substrate/Ag Waste Management							
Proposed Delivery Frequency			Volume to be Delivered				
Is Substrate/Ag Waste added to a reception pit in a barn?			Yes		No		
Is Substrate/Ag Waste added directly to a Digester?			Yes		No		
Is Substrate/Ag Waste stored in a tank?	Yes	No	Describe	tank	(		
If no to questions above, describe where the Substrate/Ag Waste will be stored							
IV. Substrate/Ag Waste Analysis	Analysis Date mg/l (ppm)		lbs/1000	gals		Total Solids %  Volatile Solids %	
Total Nitrogen						рН	
Ammonium Nitrogen						COD	mg/l (ppm)
Organic Nitrogen							
Total Phosphorous (P <sub>2</sub> O <sub>5</sub> )							
Total Potassium (K <sub>2</sub> O)							
Chloride							
Sodium							

### QUESTIONS TO ASK THE FARMER

Examples

- Do you have enough storage for \_\_\_\_\_\_ gallons/tons annually? Monthly? Weekly?
- Do you have enough land base for the nutrients found in the volume of waste?
- Do you export any manure/waste currently?
- Have you had any of your pits overtop in the last 3 years?
- Have you asked for a spreading exemption for the Agency of Agriculture in the last 3 years?
- Can you contact your NMP planner to confirm you have enough land base and storage for this proposed waste?

### WHY?

### Cannot have overtopping pits



Cannot have the farmer OVER applying waste more then recommended in their NMP, and cannot have the farmer apply nutrients during inadequate times or not in accordance with RAPs (weather, soil conditions)



### QUESTIONS?

### VT ANR DEC – Indirect Discharge Permit Program

- Bryan Harrington, (802) 505-0972; <a href="mailto:Bryan.Harrington@Vermont.GOV">Bryan.Harrington@Vermont.GOV</a>
- http://wastewater.vt.gov/landbasedindirectnonsewage.htm

### VT ANR DEC – Solid Waste Program

- Dennis Fekert, (802) 522-0195; dennis.fekert@vermont.gov
- http://dec.vermont.gov/waste-management/solid

Vermont Agency of Agriculture, Food and Markets (AAFM)

- Maria Steyaart, (802) 477-2517; Maria.Steyaart@vermont.gov
- http://agriculture.vermont.gov/water-quality





### Green Business Program

Sustainable. Smart. Successful.

### Vermont Green Brewery Cohort Program

Catherine Craig, Department of Environmental Conservation Morgan Hood, Efficiency Vermont

Efficiency







### What is the Green Business Program?

- No cost business assistance and recognition program
- High achievement in best environmental management practices and sustainability
- Technical assistance paired with an opportunity to stand out as a business

### What is the Green Brewery Cohort?

A small group of Vermont breweries who will have unique access to resources and consulting from the Vermont Green Business Program and Efficiency Vermont to save money, enhance efficiency and increase sustainability.

### **Cohort Commitments**

- Compliance
- Meet all VT Green Business requirements within 1 year
- Reduce energy use by 5%
- Track waste, energy and water use
- Reduce Water Use
  - Implement clean-in-place cleaning system
- Reduce waste with long-term goal of zero waste
  - 100% of spent grain diverted from landfill
  - Implement use of non-disposable containers including kegs

### **Cohort Benefits**

- Vermont Green Business membership (no-cost business assistance and recognition, free promotion)
- Recognition by Department of Environmental Conservation
- Access to a network of leading breweries
- Technical environmental Assistance
- Priority access to:
  - Compliance assistance
  - Efficiency VT resources

### Efficiency VT can help with:

- An energy assessment of your brewery
- Submetering -- gathering energy use data on each piece of equipment
- Benchmarking brewery energy use
- Developing an energy reduction plan
- Payback analysis on energy efficiency projects
- Financial incentives and access to financing

### Green Cleaning: What DEC Can Offer

Case study- Merrimack Ales (see white paper in your booklet)



### Resources for Growth & Innovation

Funding, incentives and rebates for expansion for your business

Department of Economic Development, Brett Long, Deputy Commissioner

**Small Business Development Center,** Charley Ininger, *Area Business Advisor: Craft Beverage Specialist* 

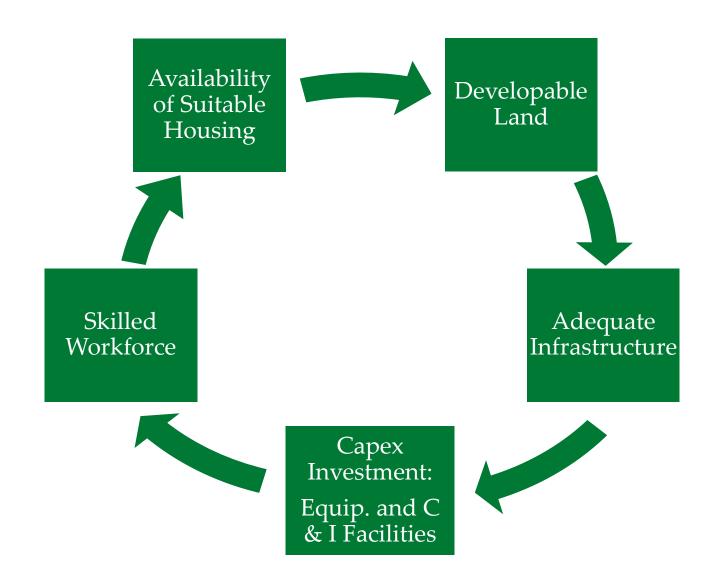
**Vermont Economic Development Association,** Sandy Croft, Commercial Loan Officer

# Department of Economic Development

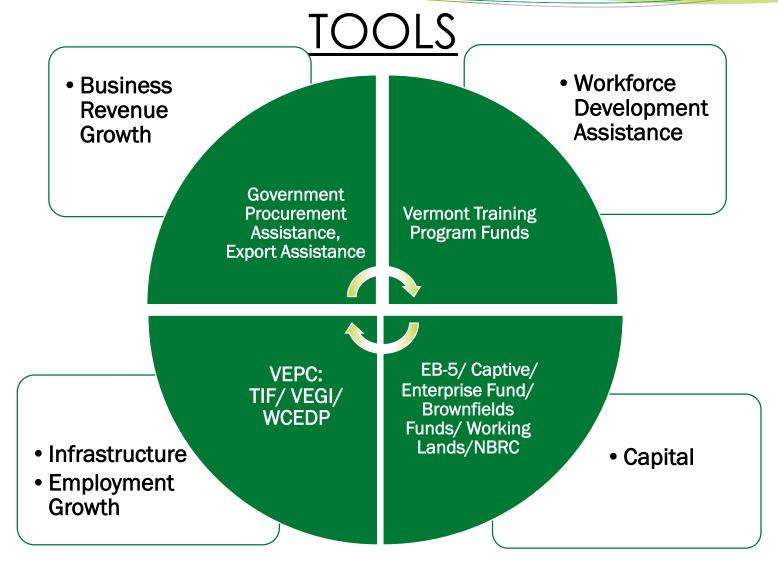
Brett Long – Deputy Commissioner



### Specific Obstacles to Economic Growth:



### Department of Economic Development:



# Department of Economic Development: ASSETS

### **Business Support:**

Calling effort in conjunction with Regional Development Corporations ("RDCs") to understand businesses' issues, gaps, and ideas.

Referrals to appropriate programs and partners.

### **Programs:**

- Vermont Training Program
- Vermont Employment Growth Incentive
- Government Procurement Technical Assistance ("PTAC")
- International Trade Assistance
- EB-5 Regional Center
- Captive Insurance

#### **Coordination:**

Facilitate with other Agencies/ State and Federal Partners:

- RDCs
- SBDCs
- VEDA
- Working Lands
- Northern Border Regional Commission

### Programs: Revenue Generation

### **Vermont Global Trade Partnership ("VGTP"):**

<u>Primary Contact:</u>
Katie Corrigan - Sr. Economic Development Specialist <u>katie.corrigan@vermont.gov</u>

802.272.1420

**VGTP** provides international business assistance.

- Provides educational seminars on international business topics
- Market sourcing and lead generation
- Source of market research
- Trade counseling and advice
- Grants are available for education, trade show participation, website optimization and technical assistance
- One example of the available training is ExporTech. This is a program designed for small businesses that already have developed some international sales in reaction to inquiries and are now ready to develop a formal international sales plan.

### Programs: Revenue Generation

### Office of Economic Adjustment ("OEA") Grant:

Primary Contact:
Brett Long – Deputy
brett.long@vermont.gov
802.461.9353

Funding for the **OEA Grant** has been provided by the US Department of Defense ("DoD") with the goal of helping Vermont's defense-related businesses to diversify away from a reliance on the DoD for revenues.

- Provides funding for the training needed for businesses to learn the competencies needed to develop new markets.
- Businesses need to have done at least 10% of their sales with the DoD in one of the last five years.
- Business may receive training in group classes such as for ISO preparation, or on a one-on-one in-depth basis.

### <u>Programs: Workforce</u> <u>Development</u>

Vermont Training Program ("VTP"):

Primary Contact:
John Young - Workforce Training
Director
john.young@vermont.gov
802.355.2725

The **VTP** provides grants to businesses to help them to defray the cost of employee training.

- Targeted at providing training for "exceptional" opportunities – not intended to replace existing training efforts.
- Should train transferable skills
- Available to new-hires or incumbent workers
- Either on-site or through a training provider
- Can cover up to 50% of training costs
- Participants must meet a minimum wage threshold

### Programs: Capital Raising

**Vermont Economic Progress Council** 

Primary Contact:

Casey Mock- Executive Director

Casey.mock@vermont.gov

802.798.2221

**VEPC** is an independent board of Vermont citizens, staffed by and Executive Director, which approves and administers the Vermont Employment Growth Incentive ("**VEGI**"), the Tax Increment Financing ("**TIF**") District program and the **Windham County Economic Development Program**.

- VEGI offers incentives to encourage business recruitment, growth and expansion.
- Provides performance-based cash incentives for job creation, payroll expansion and capital investment that exceeds the organic growth that would have been expected without the incentive.
- Board must find that the growth would not have happened without the incentive, or would have occurred in a materially different way without the incentive.
- Growth must generate more state tax revenue than is foregone.
- Only payroll related to "qualifying jobs" is included in calculation of the incentive.

### Programs: Capital Raising

### **Other Programs:**

Primary Contact:
Brett Long, Deputy
Commissioner
brett.long@vermont.gov
802.461.9353

- Brownfields RLF Loan and grant clean-up funding
- Northern Border Regional Commission Grant funding for infrastructure projects in Franklin, Grand Isle, Lamoille, Essex, Orleans, Caledonia
- Windham County Economic Development Program Loans, grants and incentives for projects in Windham County

### Questions?

Brett Long – Deputy Commissioner, Department of Economic Development

brett.long@vermont.gov

802.461.9353

# THANK YOU FOR COMING TO BREWERY DAY!

Complete evaluation Forms and...
Three Penny Taproom!

